

variable number turn into the chorda tympani, pass through the tympanic cavity, join the facial nerve, and pass with it centripetally to the geniculate ganglion; hence, as communicating branches from the facial to the tympanic plexus, thus entering the middle ear a second time, and uniting with the fibres from the otic ganglion join the glosso-pharyngeal nerve.

In conclusion, the author shows that the sensory impressions from irritation of the chorda tympani in the middle ear, on the corresponding sides of the tongue, are only felt on the margin of that organ.

RESEARCHES ON THE SENSORY NERVES.—The following is the substance of a recent short article by M. Ch. Richet, in the *Gaz. des Hôpitaux*, June 1.

The phenomena of sensibility are more difficult to appreciate, than those of motricity, and we have hardly any criterion to tell whether an animal feels or not. The author has used strychnine for this purpose, the employment of which with the reservation kept in mind, that it does not indicate the state of all the sensibilities, but only that of the excito-motor is the best method we possess for this purpose.

To study the phenomena consecutive to the natural death of a nerve; he prepared a frog, by dividing all the tissues of the thigh, leaving only the sciatic nerve intact. Following this operation, there was first a slight super-excitation soon succeeded by a gradual diminution of sensibility, from the periphery toward the centres. When ordinary excitants like contact, heat, etc., are insufficient,—electricity will still act upon the nerve,—the electric sensibility still persists.

In a frog thus prepared, death usually occurs in seven or eight hours. The sensory nerve dies before the motor, since while an excitation of the anæmic sciatic does not cause tetanus of other parts, that of a sound one does produce it, not only in the uninjured parts, but also in the prepared leg, the nerve of which has lost its sensibility but not its motor power. Death may be hastened, not only by electrizing the nerve itself, but also, by exciting any part of its periphery with strong induced currents. There appears to be, in this case, a series of nerve currents exhausting the sensibility of the nerve by their rapid succession.

In studying the different action of various sensory excitants according to their intensity, M. Richet lays down the following as the laws of sensory reaction.

1. Sensibility increases, if the excitant is feeble.
2. It undergoes alternations of increase and decrease, if the excitant is of moderate intensity.
3. It decreases, if the excitant is strong.

These three propositions, he says, may be verified in man, not only for the electrical excitant, but also for others. Thus for pressure, he employs a pincette constructed by M. Collin. If the pressure is slight, the pain, at first moderate, becomes more severe, the pressure remaining the same, with strong force used, the reverse follows. With electricity the result is still more striking.

It is interesting, says the author, to investigate whether the motor nerves

have not a similar reaction. In the frog this is not the case, but in the muscles of the claw of the crawfish, this reaction was very well observed. With mild, excitatory contraction, at first feeble, became gradually more and more marked; with strong ones, the contraction was instantaneous but soon became weaker. Finally he mentions a peculiarity of the muscles of this invertebrate, but one in accordance with his second law, they, with currents of moderate intensity, undergo a kind of rhythmic tetanus, oscillating, so to speak, in regular cadence.

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THE ACCELERATOR NERVES OF THE HEART.—R. Boehm, *Arch. f. exp. Path.* IV. p. 255. (Abstr. in *Centralblatt f. d. Med. Wissensch.*, No. 17.)

The author experimented on the accelerator nerves of the cat. He found the nerve of the left side more accessible, on account of its isolated course, than that of the right, which arises by many fibres from the stellate ganglion and soon connects with the vagus and recurrent nerves, but the irritation of the right nerve, however, was most effective. In 100 experiments, the increase of the pulse was on an average from 21 to 30 per cent., seldom under 10 or over 40 per cent. As in dogs and frogs, according to Schmiedeberg and Bowditch's statements, in the cat also, this nerve was found to have an extraordinary long stage of latent irritation, and to be unusually unirritable, so that a strong electric current was requisite, and mechanical excitations (tension, pressure, division, etc.) were without effect. (This last is not in agreement with Bezold's testimony in regard to rabbits.) On the other hand, the author detected no fatigue, not even after he had used the normal current intensity for two minutes on the nerve. During the irritation of the accelerators, the pulse was somewhat more smooth, its frequency was rather under the maximum which occurs in the cat's heart under some other circumstances (poisoning with certain substances); it is less in chloroformed animals than in curarized ones, and proportionately slight in atropinized cats. The blood pressure was scarcely affected.

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The following are the titles of additional recent papers on the Anatomy and Physiology of the Nervous System.

SCHIFF, On the so-called motor centres in the cerebral cortex. *Riv. Sperimentale*, II. Fasc. III. & IV.; TAMBURINI, Contributions to the Physiology and Pathology of Language, (cont), *Ibid*; VON JAKSCH, On the Presence of Nuclei in the Human Brain, *Pfluegers Archiv*, XIII., X. & XI., 453; GERLACH, On the connection of the Vagi with the smooth muscular fibres of the Lungs, *Ibid*, 491; TSCHIRIEW, Influence of Blood Pressure in the Heart, *Centralbl. f. d. med. Wissensch.*, No. 35; STIRLING, On the Reflex Functions of the Spinal Cord, *Edinb. Med. Journal*, May & June; LALLANNE, On the Duration of Tactile Sensation, *Gaz. des Hopitaux*, No. 100.